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Filed September 26, 2006

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES  
Senior Administrative Patent Judge McKelvey

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ROBERT H. GRUBBS and TINA M. TRNKA,

Junior Party  
(Patent 6,426,419 B1 and  
Patent 6,624,265 B1),

v.

WOLFGANG ANTON HERRMANN,  
WOLFGANG SCHATTENMANN and THOMAS WESKAMP,

Senior Party  
(Application 10/630,552 and  
Application 11/021,967).

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Patent Interference No. 105,364  
Patent Interference No. 105,365  
Technology Center 1600

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Before MCKELVEY, Senior Administrative Patent Judge, and HANLON  
and NAGUMO, Administrative Patent Judges.

NAGUMO, Administrative Patent Judge.

DECISION - Interlocutory Motions Bd.R. 125(b)

## **I. Introduction**

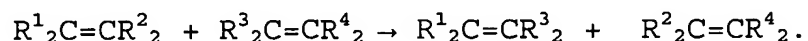
These interferences relate to certain species of olefin metathesis catalysts known in the art as "second generation Grubbs catalysts" (interference 105,364, "the 364 interference") and a metathesis reaction process (interference 105,365, "365 interference"). The interferences have been consolidated, with all papers being filed in the 364 interference.

(364 interference, Paper 3; 365 interference, Paper 3.) These catalysts are notable for their ability to promote metathesis reactions in a great variety of olefins, including olefins substituted with polar functional groups and active hydrogen atoms. As a result, they have become used in many areas of chemistry, ranging from polymerization reactions to natural product syntheses. The Nobel Prize in Chemistry for 2005 was awarded to Yves Chauvin, Robert H. Grubbs, and Richard R. Schrock for their discoveries relating to the development of the metathesis reaction in organic synthesis.

This introduction is intended to orient the non-chemical reader to the technical background of the interference. It is based primarily on the Advanced Information on the Nobel Prize in Chemistry 2005, (5 October 2005), provided by the Royal Swedish Academy of Sciences announcing the 2005 Nobel Prize in

Chemistry (GX 2014)<sup>1</sup>. This section does not constitute findings of fact on which we base our decision: formal findings of fact are set out in the body of this opinion.

Olefin metathesis involves the formal exchange of the  
5 carbene (divalent carbon, or R<sub>2</sub>C=) groups between two olefins,  
e.g.,



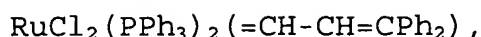
(The other combinations of R<sub>2</sub>C moieties are possible; the distribution of products depends on the thermodynamics and the  
10 kinetics of the reactions.) Chauvin<sup>2</sup>, in the early 1970's, published the first reaction mechanism that accounted for all the experimental evidence for metathesis reactions catalyzed by organometallic complexes. Chauvin's mechanism involved a complex in which a divalent carbon group is bonded to a metal  
15 atom. In 1980, Schrock published the first reports of well-defined olefin metathesis catalysts, which were based on molybdenum and tungsten carbene complexes. The Schrock catalysts are still the most active olefin metathesis catalysts known, but they are highly sensitive to air, water, and polar  
20 groups in the reacting molecules or in the solvents for the reaction.

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<sup>1</sup> Grubbs exhibits are cited as "GX 200X"; Herrmann exhibits are cited as "HX 100X".

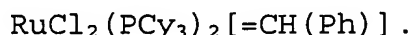
<sup>2</sup> Only the principal investigator's name is used. In each case, other members of the research groups were involved.

In 1992, Grubbs published the first well-defined ruthenium carbene complex that functioned as a metathesis catalyst. These catalysts, which have the formula



5 polymerize norbornene, a strained cyclic olefin, via a metathesis reaction. They remain active in the presence of polar molecules, including alcohols and water. Grubbs subsequently discovered that the substitution of cyclohexyl ("Cy") groups for the phenyl groups, resulted in catalysts  
10 active enough to polymerize unstrained olefins, including acyclic olefins bearing polar functional groups.

In 1995, Grubbs published a further refinement of the catalyst,



15 These catalysts came to be known as "first generation Grubbs catalysts." They were easier to make and were more reactive than the earlier catalysts and they became commercially available. Their activity, stability in air, and compatibility with a large variety of functional groups, led to their  
20 widespread adoption in many areas of organic synthesis ranging from ring opening metathesis polymerizations to the synthesis of complicated antibiotic analogues of natural products.

Detailed studies of the mechanism of the reaction indicated that the dissociation of one of the phosphine ( $\text{PR}_3$ ) groups was a critical first step in the reaction. In the words of the Royal Swedish Academy of Sciences:

5 To accelerate the dissociation Grubbs replaced  
one of the phosphines with a cyclic bis-amino  
carbene ligand. [W.]A. Herrmann had earlier  
synthesized ruthenium complexes with two such  
10 carbene ligands, but the catalytic activity of  
such compounds was modest. In Grubbs' catalysts  
containing only one such ligand the dissociation  
rate of the remaining phosphine is increased,  
increasing metathesis activity. Similar results  
15 were published almost simultaneously by S.P.  
Nolan and by A. Fürstner and Herrmann in 1999.  
The new, more reactive, catalysts are called  
second generation Grubbs catalysts.

[ $\text{RuCl}_2\{\text{C}(\text{N}(\text{mesityl})\text{CH}_2)_2\}\text{PCy}_3\} (= \text{CHPh})$ ] \*\*\* is  
20 currently the most used catalyst for efficient  
cross-metathesis reactions. This new ruthenium  
catalyst, with its greater thermal stability is  
now also available commercially.

(GX 2014 at 6; emphasis added.)

The present interferences concern a particular species of  
25 "second generation Grubbs catalyst" (364 interference) and the  
process of Ring Opening Metathesis Polymerization ("ROMP") of  
olefins using that catalyst (365 interference). As will be  
seen, the dispositive issue is whether Herrmann's applications  
adequately describe and enable the subject matter claimed by  
30 Herrmann or subject matter within the scope of the Counts.

The parties did not request oral argument.

For the reasons given below, all of Grubbs' motions are DENIED. Herrmann's motion for benefit with respect to Count 1 is GRANTED; and Herrmann's motion to substitute Counts 3 and 4 as well as Herrmann's motion for benefit with respect to  
5 Counts 3 and 4 are DISMISSED.

## **II. Findings of fact**

The following findings of fact listed below and those set out in the discussion are supported by a preponderance of the evidence of record. Any conclusions of law should be treated as  
10 such.

### Junior Party Grubbs

1. The inventors for Grubbs are listed as Robert H. Grubbs and Tina M. Trnka<sup>3</sup>.

2. Grubbs is involved in interference 364 based on U.S.  
15 Patent 6,426,419 B1 ("419 patent"; GX 2015).

3. Grubbs is involved in interference 365 based on U.S. Patent 6,624,265 B1 ("265 patent"; GX 2016).

4. U.S. Patent 6,624,265 B1 issued 23 September 2003, based on

20 application 09/770,993 (not of record), filed 25 January 2001, as a division of

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<sup>3</sup> The spelling of Dr. Trnka's name has been corrected throughout this decision, including in the style of the case.

09/539,840 (not of record), now U.S. Patent 6,426,419,  
issued 30 July 2002, filed 31 March 2000, which claims the  
benefit of provisional application

60/127,469 (GX 2001), filed 31 March 1999.

5        5.     In the 364 and 365 interferences, Grubbs has been  
accorded the benefit for priority of provisional application  
60/127,469, filed 31 March 1999. (364 Paper 1 at 3; 365 Paper 1  
at 3.)

10       6.     Grubbs' real party in interest is said to be the  
California Institute of Technology. (Paper 9 at 2.)

Senior Party Herrmann

7.     The inventors for Herrmann are listed as Wolfgang  
Anton Herrmann, Wolfgang Schattenmann, and Thomas Weskamp.

15       8.     Herrmann is involved in interference 364 based on  
application 10/630,552 ("552 application") and application  
11/021,967 ("967 application").

9.     Neither the 552 nor the 967 applications have been  
made of record.

20       10.    The 552 application was published as US 2004-  
0095792 A1 (GX 2017) and republished as US 2005-0013150 A2  
(GX 2024).

11.    US 2005-0013150 A2 (GX 2024) does not include Tables 1  
through 4, which are present in the original 552 application.

12. Accordingly, we cite only US 2004-0095792 A1  
(GX 2017).

13. The 967 application was published as US 2005-  
0107626 A1 (GX 2021).

5 14. Herrmann is involved in the 365 interference based on  
application 11/021,967.

15. Application 11/021,967, filed 23 December 2004, is  
said to be a continuation of application

10/630,552, filed 29 July 2003, which is said to be a  
10 continuation of application

09/647,742 ("742 application"), now U.S. Patent No.  
6,635,768 B1 (HX 1022; GX 2018), filed 27 November 2000, which  
was filed as the national stage of

PCT application PCT/EP99/01785<sup>4</sup>, filed 18 March 1999, which  
15 claims the benefit of priority of

German application DE 198 15 275<sup>5</sup> (HX 1019; HX 1020 is a  
copy of a certified English translation), filed 06 April 1998.

16. At the time the interference was declared, Herrmann  
was accorded the benefit for priority in the 364 and 365  
20 interferences of the 742 application and the PCT application.  
(364 and 365 Interferences, Paper 1 at 4.)

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<sup>4</sup> The original German language document has not been made of record. HX 1021  
is presented as an English translation.

<sup>5</sup> The official document bears the number "DE 198 15 275.2", but the ".2" has  
been dropped in the present record.



17. Herrmann has not been accorded the benefit for priority in either the 364 or the 365 interferences of the German application. (364 and 365 Interferences, Paper 1 at 4.)

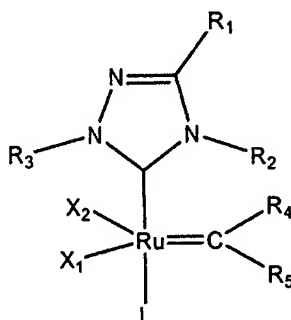
18. Herrmann's real party-in-interest is said to be  
5 Degussa AG, a German company. (Paper 6 at 2.)

The Count and Claims of the Parties

19. The sole count in interference 105,364 is Count 1,  
which reads:

Count 1

10 A compound of the formula:



where:

15 R<sub>1</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>2</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>3</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>4</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>5</sub> is hydrogen [ -H ] or a hydrocarbon group;  
X<sub>1</sub> is an anionic ligand;  
X<sub>2</sub> is an anionic ligand; and  
20 L is a ligand selected from the group  
consisting of P(cyclohexyl)<sub>3</sub> or P(phenyl)<sub>3</sub>,  
where P is phosphorus.

20. The claims of the parties are:

Grubbs 6,426,419: 1-35

Herrmann 10/630,552: 15-46

Herrmann 11/021,967: 1-21

5 21. The claims of the parties which correspond to Count 1  
are:

Grubbs 6,426,419: 1-35

Herrmann 10/630,552: 15-46

Herrmann 11/021,967: 1-7 and 15-18

10 22. The claims of the parties which do not correspond to  
Count 1 are:

Grubbs 6,426,419: None

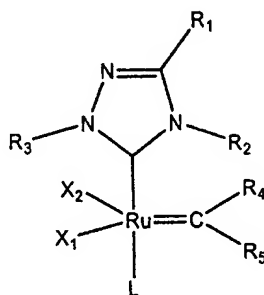
Herrmann 10/630,552: None

Herrmann 11/021,967: 8-14 and 19-21

23. The sole count in interference 105,365 is Count 2,  
which reads:

Count 2

A method for the ring-opening metathesis polymerization of a  
cyclic olefin monomer comprising contacting the olefin with a  
compound of the formula:



where:

- R<sub>1</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>2</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>3</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>4</sub> is hydrogen [ -H ] or a hydrocarbon group;  
R<sub>5</sub> is hydrogen [ -H ] or a hydrocarbon group;  
X<sub>1</sub> is an anionic ligand;  
X<sub>2</sub> is an anionic ligand; and  
L is a ligand selected from the group  
consisting of P(cyclohexyl)<sub>3</sub> or P(phenyl)<sub>3</sub>,  
where P is phosphorus.

24. The claims of the parties are:

Grubbs 6,624,265 1-20

Herrmann 11/021,967 1-21

25. The claims of the parties which correspond to Count 2  
are:

Grubbs 6,624,265 1-20

Herrmann 11/021,967 8-14 and 19-21

5 26. The claims of the parties which do not correspond to  
Count 2 are:

Grubbs 6,624,265 None

Herrmann 11/021,967 1-7 and 15-18

10 Motions

Grubbs

27. Grubbs filed three motions.

28. In the first Grubbs motion, styled "Grubbs Substantive  
Motions 1 and 3," Grubbs moves for judgment that Herrmann's  
15 552 claims 15-46 and 967 claims 1-14 and 16-21 are unpatentable  
for lack of an adequate written description in the corresponding  
specifications. (Paper 34.) Herrmann opposed (Paper 58) and  
Grubbs replied (Paper 64).

29. In the second Grubbs motion, styled "Grubbs  
20 Substantive Motions 2 and 4," Grubbs moves for judgment that  
Herrmann's 552 claims 15-46 and 967 claims 1-14 and 16-21 are  
unpatentable for lack of an enabling disclosure in the

corresponding specifications. (Paper 35.) Herrmann opposed  
(Paper 59) and Grubbs replied (Paper 65).

30. In the third Grubbs motion, styled "Grubbs Substantive  
Motion 9," Grubbs moves to deny Herrmann the accorded benefit  
5 date of 18 March 1999, the filing date of the Herrmann PCT  
application. (Paper 36.) Herrmann opposed (Paper 57) and  
Grubbs replied (Paper 66).

Herrmann motions

31. Herrmann filed three motions.

10 32. In Herrmann's first motion, styled "Herrmann Motions 1  
and 2," Herrmann seeks to be accorded the benefit for priority  
with respect to Counts 1 and 2 of its German application  
DE 198 15 275, which was filed 6 April 1998. (Paper 41.)  
Grubbs opposed (Paper 56) and Herrmann replied (Paper 61).

15 33. In Herrmann's second motion, styled "Herrmann  
Motions 3 and 5," Herrmann seeks to substitute proposed  
(broader) Counts 3 and 4 for current Counts 1 and 2,  
respectively. (Paper 43.) Grubbs opposed (Paper 55) and  
Herrmann replied (Paper 62).

20 34. In Herrmann's third motion, styled "Herrmann  
Contingent Motion 4," Herrmann seeks to be accorded the benefit  
for priority with respect to proposed Counts 3 and 4 of its PCT

and German applications. (Paper 40.) Grubbs opposed (Paper 54)  
and Herrmann replied (Paper 63).

Herrmann's Applications<sup>6</sup>

35. Herrmann involved application 10/630,552 was filed on  
5 29 July 2003, as a division of application 09/647,742, which was  
the national stage under 35 U.S.C. § 371 of Herrmann's PCT  
application.

36. Inspection of the image of the 552 specification in  
the USPTO eDAN database indicates that it is an English  
10 translation of the PCT application.

37. The 552 application claims the benefit under 35 U.S.C.  
§ 119 of Herrmann's German application.

38. Herrmann involved application 11/021,967 was filed as  
a division of the 552 application on 23 December 2004.

15 39. Inspection of the image of the 967 specification  
indicates that it is a translation of Herrmann's German  
application.

40. The disclosure of the 552 application differs from the  
disclosure of the 967 application.

20 41. Aside from minor, non-substantive differences in  
wording, the principal differences between the disclosures of  
the 552 and 967 applications appear to be:

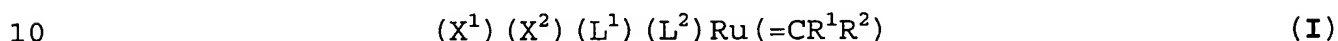
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<sup>6</sup> We do not need to describe either of Grubbs' involved patents to decide the motions before us.

(a) the additional description in the 552 application of examples of the preparation and characterization of compounds 1g) through 1i) (GX 2017 at 5, ¶ 83, through 6, ¶ 103);

5 (b) the NMR studies of the ring-opening metathesis polymerization (ROMP) of 1,5-cyclooctadiene and cyclooctene (GX 2017 at 8, ¶ 130, through 12, ¶ 133.)

42. The applications describe ruthenium complexes having structural formula I:



(GX 2017 at 1, ¶ 8.)

43. Ligand  $L^1$  is described as being an N-heterocyclic carbene ("NHC") of formulas II-V. (GX 2017 at 1-2, ¶ 12.)

44. Formula IV is a generic triazolylidene ligand that  
15 meets the limitations of Counts 1 and 2 for the  $L^1$  ligand in the ruthenium complex.

45. Ligand  $L^2$  is described as "an uncharged electron donor, in particular an N-heterocyclic carbene of the formulae II-V or . . . a phosphine . . . ." (GX 2017 at 1, ¶ 12.)

20 46. In the words of the 552 application:

The complexes are usually synthesized by ligand replacement in corresponding phosphine complexes. . . . Two phosphine ligands can be replaced selectively in accordance with the reaction equation (1) or only one can be replaced  
25 in accordance with reaction equation (2). In the case of single replacement, the second phosphine can be replaced

selectively by another electron donor, e.g. pyridine,  
phosphine . . . in accordance with reaction equation (3).

(GX 2017 at 2, ¶ 24; cf. GX 2021 at 3, ¶ 25.)

47. In compounds 1a) through 1e),  $L^1$  and  $L^2$  are both  
5 N-heterocyclic carbenes.

48. In compounds 1f) through 1i),  $L^1$  is an N-heterocyclic  
carbene, while  $L^2$  is  $P(Ph)_3$  or  $P(Cy)_3$ , where Ph represents phenyl  
and Cy represents cyclohexyl, respectively. (GX 2017 at 5,  
¶ 83, through 6, ¶ 103.)

10 49. In compounds 1a) through 1i), the N-heterocyclic  
carbenes are various imidazole-based carbenes having two  
nitrogens in the ring.

50. There are no exemplifications or express descriptions  
of particular triazole-based carbene ligands within the scope of  
15 carbene ligands recited in Counts 1 or 2.

### III. Discussion

#### Grubbs Substantive Motions 1 and 3

51. Grubbs urges that Herrmann's applications as  
originally filed do not describe the claimed subject matter.  
20 (Paper 34 at 2.)

52. In Grubbs' view, the 552 and 967 applications lack  
"the disclosure of embodiments having complexes of ruthenium  
where ligand  $L^1$  and/or ligand  $L^2$  is a triazole-based carbene



having the structure (IV) (Exhibits 2017 and 2021, page 2, col. 1)." (Paper 34 at 4.)

53. Grubbs urges that the 552 and 967 applications "are completely silent with regard to complexes having triazole-based ligands." (Paper 34 at 9.)

54. Grubbs continues, "[t]he only possible disclosure upon which Senior Party Herrmann may rely for teaching complexes having triazole-based ligands is a generic synthetic scheme (Exhibit 2017, pages 2-3, paragraphs 0024 and 0025; Exhibit 10 2021, page 3, paragraphs 0025 and 0026)." (Paper 34 at 9.)

55. According to Grubbs, Herrmann provides "at least seven working examples for complexes having imidazole-based ligands." (Paper 34 at 9.)

56. However, according to Grubbs, Herrmann provides no 15 working examples of a synthesis of a ruthenium complex having triazole based ligands. (Paper 34 at 9.)

57. Grubbs urges that Herrmann would have provided specific disclosures of complexes containing triazole-based ligands if Herrmann had been in possession of such complexes. 20 (Paper 34 at 10-11.)

58. Grubbs concludes that Herrmann's 552 and 967 applications fail to describe the claimed subject matter. (Paper 34 at 10-11.)

59. Grubbs does not cite, in its Statement Of Material Facts (Paper 34, Appendix 2), any testimony from one knowledgeable about the state of the art at times relevant to the interfering subject matter.

5 60. Grubbs does not cite, in its Statement Of Material Facts (Paper 34, Appendix 2), any reviews, technical treatises, or other documents relating the state of the art at times relevant to the interfering subject matter.

#### Discussion

10 Grubbs, as the movant, bears the burden of proving that it is entitled to the relief sought. Bd.R. 208(b). Whether the disclosure in a patent meets the written description requirement of 35 U.S.C. § 112, ¶ 1, is a factual inquiry. *In re Alton*, 76 F.3d 1168, 1171, 37 USPQ2d 1578, 1580 (Fed. Cir. 1996). The  
15 requirement serves to ensure that the original disclosure gives fair notice of what is ultimately claimed and determined to be patentable. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1330, 65 USPQ2d 1385, 1397 (Fed. Cir. 2003) ("The purpose of the written description requirement is to prevent an  
20 applicant from later asserting that he invented that which he did not; the applicant for a patent is therefore required to 'recount his invention in such detail that his future claims can be determined to be encompassed within his original creation.'")

(citations omitted.) The Federal Circuit has recently emphasized the fact-specific nature of the inquiry: "[t]he distinction in these cases is based upon what would be reasonably conveyed to a person skilled in the art at the time of the original disclosure." *Bilstad v. Wakalopoulos*, 386 F.3d 1116, 1125, 72 USPQ2d 1785, 1792 (Fed. Cir. 2004).

In the Order authorizing briefing in this phase of the interference, the Board wrote:

10           The parties are urged to present evidence  
          (declarations and documentary evidence supporting  
          statements made in declarations) on any written  
          description issue. In presenting what one  
          skilled in the art would understand from reading  
15           the Herrmann applications, evidence will be  
          helpful to the board. It may be difficult for a  
          party to prove lack of written description  
          without evidence beyond the Herrmann  
          specifications. A person having ordinary skill  
          in the art is a hypothetical person. . . . Since  
20           the person is hypothetical, establishing what the  
          person knows is best done by referring to  
          appropriate prior art documents, because the  
          hypothetical person is charged with knowledge of  
          those documents. Unsupported allegations by a  
25           witness about what one skilled in the art knows  
          may be accorded little weight.

(Paper 24 at 5.) These suggested procedures serve many functions, not the least of which is ensuring that evidence is introduced to the record in accord with the Federal Rules of  
30 Evidence. Moreover, introducing documents via a knowledgeable person affords a party the opportunity of offering an explanation of the documents to the members of the Board who,

while being "persons of competent legal knowledge and scientific ability," 35 U.S.C. § 6(a), are not necessarily familiar with the particular subject matter of every interference that comes before them. The knowledgeable persons are subject to cross  
5 examination, Bd.R. 157(c)(2), which affords the Board an opportunity to weigh the merits of the evidence offered by the parties in support of their respective positions. Arguments do not take the place of evidence and we accord them no weight in the absence of evidence.

10 In support of the present motion, Grubbs has only put in evidence (Appendices 2 and 3) of what is the text of the 552 and 967 applications. Grubbs has not directed our attention to evidence of the state of the art. Nor has Grubbs directed our attention to evidence of the knowledge and level of skill  
15 attributable to the ordinary worker in the art. Not having set an evidentiary foundation, as was its burden, Grubbs has not satisfactorily explained why the disclosure in the Herrmann 552 or 967 applications would not have conveyed, to the ordinary worker, that Herrmann was "in possession" of the subject matter  
20 of Count 1 or Count 2.

Because Grubbs has failed to establish a *prima facie* case that it is entitled to any of the relief it seeks, we need not and do not consider Herrmann's opposition (Paper 58) or Grubb's

reply (Paper 64). Grubbs Substantive Motions 1 and 3 is  
therefore DENIED.

Grubbs Substantive Motions 2 and 4

61. Grubbs moves for judgment that all of Herrmann's  
5 claims lack an enabling disclosure in the originally filed  
specifications for the full scope of the claimed subject matter.  
(Paper 35 at 2.)

62. In particular, Grubbs urges that the Herrmann  
applications (and priority documents) fail to teach how to "make  
10 complexes of ruthenium where ligand L<sup>1</sup> and/or ligand L<sup>2</sup> is a  
triazole-based carbene having the structure (IV)." (Paper 35  
at 4.)

63. Grubbs submits that the only disclosure that teaches  
triazole-based ligands is the general synthetic scheme shown in  
15 the 552 application (Ex. 2017 at 2-3, ¶¶ 24-25; see also PCT  
application, Ex 2019 at 7, ll. 16-27) and in the 967 application  
(Ex. 2021 at 3, ¶¶ 25-26; see also the German application, Ex.  
2020 at 6, ll. 15-23, and the transl. at 8, through l. 6).  
(Paper 35 at 9-10.)

20 64. According to Grubbs, no specific starting phosphine  
substituted ruthenium compounds are named, nor are stable  
compounds for carrying the ligands indicated or suggested.  
(Paper 35 at 10.)

65. Moreover, Grubbs asserts that there are no working examples showing how to synthesize ruthenium complexes of the invention having triazole-based ligands. (Paper 35 at 10.)

66. Grubbs then applies factors specified in *In re Wands*,  
5 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).  
(Paper 35 at 10.)

67. Grubbs first submits that the quantity of experimentation needed [to synthesize ruthenium complexes having triazole ligands] "must be vast," noting that seven examples are  
10 provided for imidazole complexes in Herrmann's disclosures.  
(Paper 35 at 10.)

68. However, Grubbs does not direct our attention to testimony or published articles that discuss the amount of experimentation that would have been needed to make or use  
15 triazole-based ruthenium complexes.

69. Grubbs submits that Herrmann's applications provide no guidance for the synthesis or use of complexes having triazole-based ligands. (Paper 35 at 11.)

70. Grubbs does not direct our attention to any testimony  
20 or published articles that support this argument.

71. Grubbs submits further that "the amount of skill required to synthesize such complexes is extremely high."  
(Paper 35 at 12.)

72. In support of this proposition, Grubbs asserts that  
5 Professor Grubbs was awarded the 2005 Nobel Prize in Chemistry  
"for the subject matter encompassed by U.S. Patent No. 6,426,419  
(Exhibit 2015) and U.S. Patent No. 6,624,265 (Exhibit 2016)."  
(Paper 35 at 12.)

73. However, Grubbs does not direct our attention to  
10 testimony or other evidence linking the particular limitations  
of Grubbs' claims to the award of the Nobel Prize.

74. Grubbs, based on a statement by Herrmann that it was  
surprising that slight variation in the catalysts "will tailor  
the resulting olefins to different properties" (Paper 35 at 12,  
15 citing the 552 application, Ex 2017 at 3, ¶ 35), urges that "it  
is reasonable to conclude that the state of relevant prior art  
was not very advanced, and that the entire chemical field was  
evolving" (Paper 35 at 12).

75. Grubbs also urges that the scope of the claims is  
20 extremely broad, encompassing "a nearly infinite number of  
species and subspecies." (Paper 35 at 13.)

76. Grubbs concludes that Herrmann has not provided an  
enabling disclosure for the claimed subject matter.

77. Grubbs, in its Statement Of Material Facts (Appendix 2), cites numerous passages from the 552 and 967 applications, and certain statements attributed to the Swedish Royal Academy.

5        78. Grubbs cites no other testimony or documents relating to the state of the art, the knowledge and skills of the ordinary worker in the art.

#### Discussion

Whether or not the supporting disclosure enables the  
10 ordinary worker to make and use the claimed invention without undue experimentation is a question of law based on underlying issues of fact. *Plant Genetic Systems N.V. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1339, 65 USPQ2d 1452, 1455 (Fed. Cir. 2003). Whether or not the amount of experimentation necessary  
15 to practice a claimed invention is undue is also a legal question based on underlying factual inquiries. *Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). Among the factual inquiries most relevant to the enablement of the subject matter claimed by Herrmann are: the state of the art as of Herrmann's  
20 filing date; the level of skill of the ordinary worker at that time; what the ordinary worker would have been taught by Herrmann's disclosure; and the amount of experimentation that



would have been necessary to make and use triazole-ligand ruthenium complexes of the invention.

Grubbs has the burden, as the movant, of coming forward with evidence sufficient to support a *prima facie* case that it is entitled to the judgment it seeks. Bd.R. 125(b). Grubbs, however, has come forward with no testimony and few if any documents in support of its arguments. Moreover, those documents (e.g., the "Advanced Information" (GX 2014) and the "Supplementary Information" (GX 2013) released by the Swedish Royal Academy), to the extent they are relied on for the truth of what they assert, are hearsay, Fed. R. Evid. § 801(c), and generally are not admissible as evidence for that purpose in interference cases. Bd.R. 151, 152. Moreover, the descriptions in the "Supplementary Information" are rather general, and there is little if any discussion there or in Grubbs' supporting argument that explains why Herrmann's disclosure fails to enable particular limitations of Herrmann's claimed subject matter. Grubbs' factual submissions amount to no more than unsupported allegations and attorney argument, and we therefore accord them no weight. As we hold that Grubbs has failed to establish a *prima facie* case that it is entitled to the relief it seeks, we need not and do not consider Herrmann's opposition (Paper 59) or Grubbs' reply (Paper 65).

Grubbs Substantive Motions 2 and 4 are DENIED.

Grubbs Substantive Motion 9

Grubbs Substantive Motion 9, to deny Herrmann the accorded benefit of its PCT filing date, follows the contours of its  
5 other two motions. (Paper 36.)

As in the Grubbs motions already considered, Grubbs fails to come forward with admissible evidence in support of its contentions that the PCT application, which appears to be substantially the same as the 364 disclosure, lacks an adequate  
10 written description or an enabling disclosure of the claimed subject matter. For the same reasons, we hold that Grubbs has not established a *prima facie* case that it is entitled to the relief sought. Thus, we decline to consider Herrmann's opposition (Paper 57) or Grubbs' reply (Paper 66).

15 Grubbs Substantive Motion 9 is DENIED.

Herrman Motions 1 and 2

Herrmann's arguments

79. Herrmann moves to be accorded the benefit for priority of its German application, DE 198 15 275 for Counts 1 and 2.  
20 (Paper 41.)

80. Herrmann argues that the copendency requirements were met (Paper 41 at 4-6), citing facts 1-17 in support of its argument.

81. Herrmann relies extensively on the testimony of Renat Kadyrov ("Kadyrov"; declaration, HX 1027; deposition, HX 1058) to support its motion. (Paper 41.)

82. Kadyrov testifies that he has a Ph.D. in chemistry, earned in Russia, and that he has "broad expertise" in areas including phosphoroorganic, organometallic chemistry, and homogeneous catalysis, including metathesis catalysts. (HX 1027 at 1, ¶ 1, and at 30.)

83. Kadyrov testifies further that "I was working actively in the transition metal catalyst art in April, 1998, and I am familiar with the metathesis catalysts, including alkylidene ruthenium catalysts, in use at that time." (HX 1027 at 1, ¶ 1.)

84. We find Kadyrov to be well-qualified to testify on issues relating to the subject matter of this interference.

85. Kadyrov reviews the state of the ruthenium metathesis catalyst art prior to the filing date of the German application, "DE19815275" (HX 1020). (HX 1027 at 4, ¶ 8, through 11, ¶ 27.)

86. According to Kadyrov, U.S. Patent No. 5,312,940 (GX 2003; "940" patent), issued to Grubbs *et al.* on 17 May 1994, teaches a general structure of an alkylidene ruthenium structure  $(X)(X^1)(L)(L^1)Ru(=CR^1R)$ . (HX 1027 at 5-6, ¶ 14, citing GX 2003 at col. 1, ll. 44-66.)

87. As seen in the structure (see, *e.g.*, *supra* at 8), the ligands X and  $(=CR^1R)$  lie in an approximate plane with the ruthenium atom and L and  $L^1$  are bonded to the ruthenium "vertically," above and below the plane.

10 88. According to Kadyrov, the 940 patent teaches that ligands L and  $L^1$  can be exchanged, singly or together, for another ligand  $L^2$ , where L,  $L^1$ , and  $L^2$  are selected from any neutral electron donor. (HX 1027 at 13, ¶¶ 30-31.)

15 89. Kadyrov testifies that WO96/04289 (HX 1007) describes a ligand exchange reaction in which triphenylphosphine ligands,  $[P(\text{phenyl})_3]$ , are replaced with tricyclohexylphosphine ligands  $[P(\text{Cy})_3]$  ligands. (HX 1027 at 7-8, ¶¶ 17-19.)

20 90. Kadyrov testifies that the German application (HX 1020 at 2, ll. 25-27) cites WO96/04289 (HX 1007). (HX 1027 at 13, ¶ 31.)

91. According to Kadyrov, methods for making triazolylidenes, including the only triazolylidene ligand

taught in the Grubbs priority application (GX 2001), were known to the art prior to Herrmann's German application. (HX 1027 at 9-11, ¶¶ 24-27, citing WO97/34875 (HX 1031, published 25 September 1997) and "Enders 1995" (HX 1033)).<sup>7</sup>

5           92. Kadyrov testifies that the German application "expressly describes a broad genus of alkylidene ruthenium complexes comprising a triazolylidene as one of its ligands." (HX 1027 at 11, ¶ 28, citing HX 1020 at 3-4.)

          93. More particularly, Kadyrov testifies that the  
10 triazolylidene subgenus where L<sup>2</sup> is P(phenyl)<sub>3</sub> or P(Cy)<sub>3</sub> are also described via reaction equation (2) at page 8 of the German application, which teaches replacement of a single PR<sub>3</sub> ligand with a single "ligand substitution" (also known as a "ligand exchange" reaction). (HX 1027 at 13,  
15 ¶¶ 30-31.)

94. In Kadyrov's words:

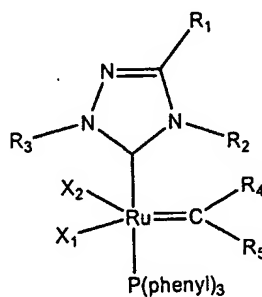
While Examples 1a-1f of DE19815275 only describe ligand exchange of a P(phenyl)<sub>3</sub> ligand with a  
20 different N-heterocyclic carbene (specifically, an imidazolin-2-ylidene, which corresponds to Formula II of the N-heterocyclic carbenes on p. 4, l. 24 of DE19815275), one skilled in the art would have understood DE19815275 as  
25 describing compounds wherein any of the other N-heterocyclic carbene ligands disclosed in DE19815275 (i.e., N-heterocyclic carbenes having

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<sup>7</sup> D. Enders et al., "Preparation, Structure, and Reactivity of 1,3,4-Triphenyl-4,5-dihydro-1H-1,2,4-triazol-5-ylidene, a New Stable Carbene," 34 *Angew. Chem. Int. Ed. Engl.* 1021 (1995))

structures III to V on p. 4, l. 24 of DE19815275)  
were used to replace a P(phenyl)<sub>3</sub> ligand.

5     **Exhibit 1020.** Thus, one skilled in the art would  
have understood the specification as describing  
compounds produced when a triazolylidene is  
substituted in a ligand exchange reaction with  
P(phenyl)<sub>3</sub>. Such compounds, which have the  
following general formula:



10     fall within the scope of Count 1.

(HX 1027 at 14-15, ¶ 33.)

95. We understand Kadyrov to be describing an  
exchange reaction in which a triazolylidene moiety replaces  
a triphenylphosphine moiety of a ruthenium complex.

15     96. According to Kadyrov, the synthesis method  
described in the German application "corresponds to the  
well-known prior art ligand exchange reaction." (GX 1027  
at 17, ¶ 37.)

97. Kadyrov supports this statement by comparing the  
20 "general working procedure" for synthesizing the ruthenium  
carbene complexes described in the German application  
(HX 1020 at 10, l. 31, through 11, l. 6) with the specific  
procedure for synthesizing Example 1f, a complex having a

single N-heterocyclic carbene ligand (HX 1020 at 14,  
11. 10-21), as well as with a working example of a ligand  
exchange reaction in WO96/04289 (Example 21) (HX 1007  
at 23, 11. 1-15), and the example in Schwab et al. (HX 1009  
5 at 2041, col. 1, 2d paragraph of "Experimental procedure").  
(HX 1027 at 17-18, ¶¶ 38-42.)

98. Kadyrov concludes, "[s]pecifically, each of these  
examples describes mixing in an inert solvent under the  
reaction conditions a tri-alkylphosphone-containing  
10 alkylidene ruthenium complex with either 2.1-2.2  
equivalents of a neutral electron donor ligand (in order to  
replace both trialkylphosphane ligands) or 1.1 equivalents  
of a neutral electron donor ligand (in order to replace  
only a single tri-alkylphosphane ligand." (GX 1027 at 18,  
15 ¶ 42.)

99. Kadyrov testifies further that even though the  
German application doesn't provide an example of a  
triazolylidene ligand exchange reaction, "one skilled in  
the art would have predicted that such a reaction could  
20 successfully be carried out to produce the triazolylidene-  
containing alkylidene ruthenium complexes described in  
DE19815275." (GX 1027 at 18, ¶ 43.)

100. According to Kadyrov, the crucial factor is that triazolylidene, like the imidazolin-2-ylidenes explicitly described in the German application, is a neutral electron donor ligand. (GX 1027 at 18, ¶ 44.)

5        101. Kadyrov testifies that one skilled in the art would thus expect the ligand exchange reaction with a triazole also to be successful. (GX 1027 at 19, ¶ 45.)

102. Kadyrov describes experiments he performed to reproduce the synthesis of a triazole-based ruthenium  
10 complex "using the methods described in DE 19815275 or methods well-known in the art as of April, 1998." (HX 1027 at 19, ¶ 47; *id.* at ¶ 48 through 24, ¶ 63.)

103. Kadyrov concludes that one skilled in the art would consider the German application to enable the  
15 production of compounds within the scope of Count 1. (GX 1027 at 19, ¶ 46.)

104. Regarding the ring opening metathesis polymerization ("ROMP") reaction of Count 2, Kadyrov testifies that the general disclosure of the reaction in  
20 the German application (e.g., GX 1020 at 1, ll. 10-16; *id.* at 8, ll. 2-13), together with the examples of ROMP of norbornene derivatives and cyclooctene in Example 2a (GX 1020 at 15, l. 16 to 18, l. 8) would have convinced once



skilled in the art that the triazolylidene carbene complexes would have worked due to the structural and chemical similarity to the exemplified imidazolin-2-ylidene complexes.

5           105. In particular, Kadyrov testifies that "the functionality of the complex compounds according to the invention is a function of the particular R radicals for  $R_2$  and  $R_3$  in the general formulas for imidazolin-2-ylidene and triazolylidene." (GX 1027 at 27, ¶ 75.)

10           106. Inspection of the general formulas for those N-heterocyclic carbenes shows that  $R_2$  and  $R_3$  are the substituents attached to the nitrogens on either side of the carbene carbon.

15           107. Finally, Kadyrov testifies, on the basis of his review of Herrmann's PCT application (HX 1021), that all the relevant disclosure in the specification of the German application on which he relied is also found in the PCT application.

20           108. Accordingly, Kadyrov testifies that it is also his opinion that the PCT application describes and enables the subject matter of Counts 1 and 2, as well as proposed Counts 3 and 4. (HX 1027 at 28-29, ¶ 84.)

Grubbs' opposition

109. Grubbs admits facts 1-8 and 10-17 (Paper 56 at 2).

110. Grubbs does not specifically dispute Herrmann's  
narrative or arguments that Herrmann met the continuity  
5 requirements.

111. Grubbs denies Herrmann fact 9, that the 742  
application timely entered the National Stage (Paper 56 at 2),  
but does not explain why it thinks Herrmann's statement is  
incorrect or not supported by the record.

10 112. Grubbs admits Herrmann fact 17, that the German, PCT,  
742, 552, and 967 applications form a continuous chain within  
the meaning of Bd.R. 201. (Paper 56 at 2.)

113. Grubbs does not deny that Herrmann's applications  
satisfy the temporal requirements of copendency and  
15 continuity. (Paper 56 at 2.)

114. Rather, Grubbs argues first that the German  
application does not satisfy the written description  
requirement. (Paper 56 at 2-6.)

115. More particularly, Grubbs urges that Herrmann  
20 fails to provide a sufficient foundation as to why certain  
documents, such as Enders 1995 (HX 1033), are included by  
Herrmann as evidence of what was well known in the art,

whereas another paper by Enders<sup>8</sup>, "Enders 1997" (GX 2026),  
is not included. (Paper 56 at 10.)

116. Grubbs appears to argue that Herrmann fails to  
show why one would choose one Enders article over the other  
5 when seeking to make NHC complexes. (Paper 56 at 10.)

117. Grubbs does not direct our attention to testimony  
that explains the relevance of Enders 1997.

118. Grubbs concludes that Herrmann has provided an  
inappropriately advanced or expert status for who is one  
10 skilled in the art, and what such a person would know.  
(Paper 56 at 11.)

119. Grubbs concludes that Herrmann's conclusion,  
based on Kadyrov's testimony, is based on too high a  
standard of who should be considered a person of ordinary  
15 skill in the art. (Paper 56 at 13.)

120. Grubbs does not direct our attention to any  
testimony or other evidence in support of its definition of  
what is the relevant art, or who is a person of ordinary  
skill in that art.

20 121. Grubbs urges that Herrmann's disclosure must be  
insufficient to describe any species within the scope of

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<sup>8</sup> D. Enders et al., "Stereoselective Synthesis of First Enantiomerically Pure  
Triazolinylidene ruthenium (II) and -rhodium (III) Chelate Complexes," 130  
*Chem. Ber./Recueil* 1253 (1997).

the Count because there are no examples of triazole-based complexes, whereas there are "many particular species of complexes having imidazole-based heterocyclic carbene ligand in the German application." (Paper 56 at 15.)

5        122. According to Grubbs, the absence of any disclosure of a particular species within the scope of the Count and the absence of a working example within the scope of the Count suffice as a proof that the German application fails to comply with the written description requirement.

10       (Paper 56 at 16.)

123. Grubbs does not direct our attention to any testimony or other evidence in support of its characterizations of the state of the art.

124. Grubbs next argues that the enablement  
15       requirement is not met. (Paper 56 at 17.)

125. Grubbs urges that Kadyrov conceded that the German application lacks a specific teaching of how to synthesize a triazole-based ruthenium complex. (Paper 56 at 18.)

20       126. Grubbs urges further that Kadyrov conceded that the German application "does not provide any examples or direct comparison showing that a mono-N-heterocyclic carbene ("mono-NHC") complex has improved catalytic

activity over bis-cyclohexylphosphane containing complexes." (Paper 56 at 18, citing GX 2027 at 91, l. 20, to 92, l. 1)

127. Grubbs urges that the German application is  
5 silent as to any showing that mono-NHC complexes have catalytic activity. (Paper 56 at 18.)

128. Grubbs then applies the *Wands* factors to show that the effort required to make and use the mono-NHC complexes of the Count would have been undue. (Paper 56  
10 at 19ff.)

129. Grubbs urges that Herrmann presents a "large amount of experimental data" for the synthesis of imidazole-based complexes, and that, based on that disclosure, the synthesis of triazole-based complexes  
15 "would be just as sophisticated." (Paper 56 at 19.)

130. Grubbs cites Kadyrov's statement that "the structures R3 and R2 equal hydrogen where it is very difficult to produce them, I mean to prepare them in a direct way" (GX 2027 at 42, ll. 9-11) as evidence of the  
20 complexity of the art. (Paper 56 at 19-20.)

131. Grubbs cites no other testimony regarding the complexity of the art.

132. Grubbs also challenges Herrmann's position that ligand exchange for cycloalkyl phosphine ligands would have been reasonably expected to succeed, submitting "that one of skill in the art would not have found any indication in  
5 the art at the time of filing that substitution of one of the ligands in these complexes would improve catalytic activity." (Paper 56 at 20.)

133. Grubbs urges that its argument is supported by Kadyrov's inability to identify any pre-April 1998  
10 reference relating to tricyclohexylphosphine ligands as starting compounds. (Paper 56 at 21, citing the Kadyrov deposition, GX 2027 at 52, l. 22, through 54, l. 2.)

134. Grubbs also points to Kadyrov's "admission" that a "complete synthesis" was not available in the literature  
15 until 2003, and that prior to April 1998, only "the last descriptive step" was provided. (Paper 56 at 21, citing GX 2027 at 101, ll. 13-18.)

135. Grubbs concludes that Kadyrov's experiments, conducted in support of his declaration, were done using  
20 knowledge gained after 2003, and are not indicative of methods well known as of April 1998. (Paper 56 at 21.)

136. Grubbs urges that the state of the art prior to April 1998 was characterized by "concentrating

predominantly on phosphane ligands," and that the state of the art with respect to NHC ligands could be characterized as "nascent, emerging technology." (Paper 56 at 22.)

137. As further evidence of the complexity of the art  
5 of the invention, Grubbs points to the award of the 2005 Nobel Prize in Chemistry for subject matter encompassing the involved 419 and 265 patents. (Paper 56 at 22.)

138. Grubbs urges that because of the complexity of the art of the invention, "one of skill in the relevant art  
10 would expect a more detailed disclosure in the German application to make or use the invention." (Paper 56 at 22.)

139. Grubbs urges that the art was unpredictable, citing Herrmann's statement that it was "surprising" that  
15 slight variations in the catalysts would result in polyolefins having different properties. (Paper 56 at 22.)

140. Grubbs also argues that the prior art would not have led one of skill in the art to synthesize compounds, within the scope of the counts, urging that Herrmann does  
20 not explain why one would follow Enders 1995 (HX 1033) over Enders 1997 (HX 2026). (Paper 56 at 22.)

141. Grubbs also urges that Herrmann does not show that the synthetic procedures shown for the imidazole-based

complexes are necessarily useful for synthesizing triazole-based complexes. (Paper 56 at 23.)

142. More particularly, Grubbs points out that the triazoles contain three nitrogens whereas the imidazoles  
5 contain two nitrogens, and that one would expect their physical and chemical properties to be different, including different reactivities in the reaction of ligand exchange.  
(Paper 56 at 23.)

143. Grubbs does not direct our attention to any  
10 testimony or publications that explain the differences between imidazoles and triazoles in ligand exchange reactions.

144. Grubbs does not direct our attention to any  
testimony or publications that cast doubt on the efficacy  
15 of ligand exchange reactions for making mono-NHC complexes within the scope of Herrmann's claims.

145. Finally, Grubbs urges that Herrmann's claims are very broad, encompassing a "nearly infinite number of species and subspecies." (Paper 56 at 24.)

20 146. Grubbs concludes that Herrmann's German application fails to enable the full scope of the claims, and that Herrmann's motion for benefit should be denied.  
(Paper 56 at 24.)



Discussion

Benefit for priority of an earlier, copending application, is accorded in an interference if the earlier application contains a constructive reduction to practice  
5 of an embodiment within the scope of the Count. Bd.R. 201. Such an embodiment must be described and enabled, within the meaning of 35 U.S.C. § 112, first paragraph. *Hunt v. Treppschuh*, 523 F.2d 1386, 1389, 187 USPQ 426, 429 (CCPA 1975) ("§ 112, first paragraph requirements need only be met  
10 for an embodiment within the count.") Herrmann, as the movant, bears the burden of proof.

It has long been recognized, in the context of anticipation under 35 U.S.C. § 102, that the description of a small genus can constitute a description of the species  
15 therein. *In re Petering*, 301 F.2d 676, 681, 133 USPQ 275, 279-280 (CCPA 1962) (finding that a skilled worker would "at once envisage each member" of a limited class, based on the pattern of specific preferences); see also *In re Schaumann*, 572 F.2d 312, 316-17, 197 USPQ 5, 9 (CCPA 1978)  
20 (finding that because the description "embraces a very limited number of compounds closely related to one another in structure, we are led inevitably to the conclusion that the reference provides a description of those compounds

just as surely as if they were identified in the reference by name."); but see *Bristol-Myers Squibb Co. v. Ben Venue Labs. Inc.*, 246 F.3d 1368, 1380, 58 USPQ2d 1508, 1517 (Fed. Cir. 2001) (citing *Petering*, but finding the record  
5 inadequate to permit a finding of anticipation). The question here is whether Herrmann's German application adequately describes an embodiment within the scope of the Counts 1 and 2.

There is no dispute that Herrmann's German  
10 application, which appears to have substantially the same disclosure as Herrmann's involved 967 application, does not expressly name or exemplify a species within the scope of Counts 1 or 2. However, the German application describes a broad genus of ruthenium complexes of formula I, in which  
15 the ligand  $L^1$  is an N-heterocyclic carbene of formulas II through IV. (HX 1020 at 4, ll. 17-18 and 23.) Complexes within the scope of Counts 1 and 2 in this interference have an NHC of formula IV; but only complexes in which  $L^1$  is formula II are exemplified in the German application.  
20 Moreover, Counts 1 and 2 expressly limit the ligand L, which corresponds to  $L^2$ , to triphenylphosphine ( $PPh_3$ ) or tricyclohexylphosphine ( $PCy_3$ ). In contrast, however, in the most general description in the German application,  $L^2$  is

said to be "a neutral electron donor, especially a  
N-heterocyclic carbene of general formulae II - V or an  
amine, imine, phosphane, phosphite, stibine, arsine,  
carbonyl compound, carboxyl compound, nitrile, alcohol,  
5 ether, thiol or thioether." (HX 1020 at 4, ll. 18-23.)  
The German application, in Example 1f, does provide a  
species in which  $L^1$  is an NHC of formula II and  $L^2$  is  $PPh_3$ .  
(HX 1020 at 14.) (The other five examples, 1a)  
through 1e), yield complexes in which both ligands  
10 corresponding to  $L^1$  and  $L^2$  are N-heterocyclic carbenes.  
(HX 1020 at 11-14.) The starting material for five of the  
six examples is  $(PPh_3)_2Cl_2Ru(=CHPh)$ ; in the sixth example  
(Example 1d), the phenyl group in the  $(=CHPh)$  moiety has a  
chlorine ("Cl") substituent. In all these starting  
15 materials, the ligands corresponding to  $L^1$  and  $L^2$  are  $PPh_3$ .

In light of the plain language of the German  
application, we find Kadyrov's testimony that it "expressly  
describes a broad genus of alkylidene ruthenium complexes  
comprising a triazolylidene as one of its ligands" (HX 1027  
20 at 11, ¶ 28, citing HX 1020 at 3-4) highly credible.  
Accordingly, we find that one skilled in the art would have  
recognized that the German application describes the genus  
of complexes in which ligand  $L^1$  is the NHC of formula IV.

We further note that the ligands  $L^2$  required by Counts 1 and 2 are  $PPh_3$  and  $PCy_3$ . The  $PPh_3$  ligand is the ligand used in the starting material in all six examples of the German application, including in the mono-NHC example. The  $PCy_3$  ligand is used in the commercially available "first generation Grubbs catalyst," which was described in 1995 (GX 2014 at 6), well before the 1998 filing date of the German application. It seems clear on the present record that both  $PPh_3$  and  $PCy_3$  were regarded as the default ligands – the "ligands of choice" – for such complexes. That is, while any of a large and arbitrary number of ligands would have been recognized as possible choices, these two ligands were regarded as the starting point for further work.

As for the process of ring opening metathesis polymerization ("ROMP") covered by Count 2, Kadyrov testifies that the German application teaches the ordinary worker that the disclosed complexes are useful for metathesis reactions, including ROMP. (HX 1027 at 24–25, ¶¶ 64–69.) Moreover, Kadyrov testifies that "Example 2a of DE19815275 reports the successful ROMP of norbornene, cyclooctene and functionalized norbornene derivatives using imidazolin-2-ylidene-containing alkylidene-ruthenium complexes." (HX 1027 at 26, ¶ 72, citing HX 1020 at 15,

1. 16 through 18, l. 8.) Kadyrov concludes that, because the German application describes complexes within the scope of compounds recited in Count 2, and enables their synthesis, it follows that the German application describes the use of these compounds for ROMP of cyclic olefin monomers. (HX 1027 at 25-26, ¶ 70.) According to Kadyrov, the absence of an express working example would not have dissuaded one skilled from the art of the efficacy of these compounds for ROMP. (HX 1027 at 26, ¶ 71.)

10 On the facts of this case, we have no difficulty finding that Herrmann has established a *prima facie* case that the German application satisfies the written description requirement for embodiments within the scope of Count 1 and Count 2.

15 Regarding the enablement issue, we find Kadyrov's testimony that the synthesis method described in the German application "corresponds to the well-known prior art ligand exchange reaction" (GX 1027 at 17, ¶ 37) credible. We find Kadyrov's further testimony that one skilled in the art would have expected the single ligand replacement reaction shown in Example 1f would work with a triazolylidene based NHC (GX 1027 at 18-19, ¶¶ 44-45), because both replacement ligands are neutral electron donors, also to be credible.

We observe that Kadyrov's testimony is consistent with the teachings of the prior art, including Grubbs' own prior patents for similar ruthenium catalysts. Moreover, the record, including Kadyrov's report of his experiments  
5 conducted in support of his declaration and Grubbs' involved specification indicate that only standard procedures were needed to make and use the triazole-based ruthenium complexes. Accordingly, we find that Herrmann has established a *prima facie* case that its German  
10 application provides an enabling disclosure for at least one embodiment within the scope of Count 1.

As for the enablement of ROMP reactions within the scope of Count 2, Kadyrov testifies that the exemplified imidazolin-2-ylidenes are structurally similar to  
15 triazolylikenes. (HX 1027 at 26, ¶ 73, showing the structures.) We note that in both structures, the carbene carbon is flanked on both sides by nitrogen atoms that are substituted with radicals labelled  $R_2$  and  $R_3$ , and that the difference is that the triazolylidene has a nitrogen atom  
20 in place of  $CR_4$  group. Kadyrov testifies further that the German application teaches that the radicals R on the nitrogen atoms of the heterocyclic carbene ligands can be varied to control the activity and selectivity of the

metathesis reaction. (HX 1027 at 26-27, ¶¶ 74-75.)

Kadyrov concludes that the common identity of the structures that affect functionality would convince one skilled in the art that triazolylidene-containing complexes would be useful for ROMP as are the imidazolylidene complexes. (HX 1027 at 27, ¶ 76.)

On review of the German application, we find that Kadyrov's descriptions appear to be accurate. We credit his conclusions as reasonable, subject to analysis of Grubbs' criticisms.

Grubbs' arguments in opposition to both the written description and enablement of the embodiment focus strictly on the technological merits of the case. Grubbs mounts no substantial challenge to the timeliness or propriety of any of Herrmann's applications. Grubbs' opposition, however, suffers from a lack of evidence that controverts material portions of Kadyrov's testimony and Herrmann's case. For example, Grubbs' challenge to Herrmann's characterization of the state of the art (Paper 56 at 10-13) is not supported by any testimony regarding the state of the art or the knowledge of those skilled in the art at that time. Similarly, Grubbs' challenges to the adequacy of disclosure of the working examples (Paper 56 at 15-20) are not

not supported by testimony from persons knowledgeable in the relevant art. Grubbs has not provided us with any guides to this relatively sophisticated area of science. Nor are we provided with any testimony taken under cross  
5 examination that might enable us to assess the credibility of witnesses testifying on behalf of Grubbs.

We do not find Grubbs' characterizations of Kadyrov's testimony as an "admission" that a complete synthesis was not available in the literature until 2003 (Paper 56 at 21,  
10 citing GX 2027 at 101) persuasive that one skilled in the art would not have been able to synthesize triazolylidene complexes within the scope of the claims or the Counts. Under cross-examination, Kadyrov testified that the procedures for making novel complexes was straight-forward:

15 A standard method to prepare a new complex in the, in a transition, within complex chemistry for transitional metal complexes since 100 years is simple exchange of one ligand by the other ligand.

20 And the teachings, that what was taught by Grubbs is, for example, for the first time in the patent '940 that's shown there in order to prepare the alkylidene complexes, I only need to exchange the ligands and if I only have one commercial complex

25 of this type, and I am a, an experienced chemist in the field of complex chemistry, then I do not need to worry much.

I can just take this commercially available complex and I prepare a new complex where I  
30 substitute the adequate ligand by other ligands.



(HX 1058 at 56, ll. 10-24) (emphasis added). These statements are neither contradicted by nor inconsistent with his later "admissions." Grubbs fails to come forward with any evidence that the substitution of a triazole-based carbene for imidazol-based carbene would have been beyond the ordinary skill of the art. Nor has Grubbs identified any evidence of record that any unexpected difficulties were encountered in the synthesis or use of the triazole-based ruthenium complexes. Grubbs' inferences are merely attorney argument to which we give no weight.

Grubbs' characterizations of the state of the art as being nascent and therefore complex beyond the ability of the ordinary worker to adapt the procedures disclosed in the German application without undue experimentation suffer from a similar lack of testimony and other documentary evidence. We do not credit these arguments, nor are we persuaded that the attention of those skilled in the art was focused on phosphine ligands to the exclusion of other possible ligands. Indeed, the nearly simultaneous publication of similar work on NHC-ruthenium complexes (GX 2014 at 6) suggests that the idea was "in the air" and that many workers were ready to exploit it.

The remarks of the Federal Circuit in a similar situation are on point:

5 We do not state a *per se* rule that expert testimony is required to prove infringement when the art is complex. Suffice it to say that in a case involving complex technology, where the accused infringer offers expert testimony negating infringement, the patentee cannot satisfy its burden of proof by relying only on  
10 testimony from those who are admittedly not expert in the field. That is what happened here, and the patentee thus failed to satisfy its burden of proof. This case stands as an apt example of what may befall a patent law plaintiff  
15 who presents complex subject matter without inputs from experts qualified on the relevant points in issue when the accused infringer has negated infringement with its own expert.

*Centricut, LLC v. The Esab Group, Inc.*, 390 F.3d 1361, 1370,  
20 73 USPQ2d 1135, 1141 (Fed. Cir. 2004) (*reh'g en banc denied*).

Here, Herrmann has offered expert testimony supporting its written description and enablement arguments. Grubbs attempts to rebut Herrmann's case with argument supported only with what amounts to pure attorney argument. Weighing Kadyrov's  
25 testimony, which we have found to be credible, against the absence of admissible evidence supporting Grubbs' opposition, we have no difficulty holding that Herrmann is entitled to be accorded benefit of its German application with respect to Count 1. Herrmann Motions 1 and 2 are GRANTED.

Herrmann's Remaining Motions

147. Grubbs has stipulated that it cannot allege a date of invention prior to the Herrmann German application. (Paper 25 at 2, "Post Conference Call Memorandum," filed 5 28 November 2005.)

148. As a result of the grant of Herrmann Motions 1 and 2, Herrmann has been accorded the benefit for priority of its German application.

149. Herrman Motions 3 and 5, to substitute Counts 3 10 and 4 for Counts 1 and 2, respectively, are premised in part on the proposition that Herrmann's best priority proofs lie outside the scope of current Counts 1 and 2. (Paper 43 at 3.)

150. Herrmann Motion 4 is contingent on the grant of 15 Herrmann Motions 3 and 5, and requests that Herrmann be accorded the benefit for priority of its PCT and German applications with respect to Counts 3 and 4.

Discussion

In view of Grubbs' stipulation that it cannot allege a 20 date of invention earlier than the now-accorded benefit of Herrmann's German application filing date for Counts 1 and 2, there is no need to change the Counts. Accordingly,

Herrmann Motions 3 and 5, and Herrmann Contingent Motion 4  
are DISMISSED as moot.

Summary

As a result of the decisions on motions, there is no  
5 need to change the Count, although the change in benefit  
accorded Herrmann requires a redeclaration of this  
interference. Moreover, in light of Grubbs' concession  
that it cannot allege a date of invention prior to  
Herrmann's now-accorded benefit date, entry of Final  
10 Judgment is now appropriate.

**IV. ORDER**

In consideration of the foregoing, it is

ORDERED that Grubbs Substantive Motions 1 and 3  
15 is DENIED.

FURTHER ORDERED that Grubbs Substantive Motions 2  
and 4 is DENIED.

FURTHER ORDERED that Grubbs Substantive Motion 9  
is DENIED.

20 FURTHER ORDERED that Herrmann Motions 1 and 2 is  
GRANTED.

FURTHER ORDERED that Herrmann is accorded the  
benefit for priority with respect to Counts 1 and 2 of  
German application DE 198 15 275.

FURTHER ORDERED that Herrmann Motions 3 and 5 is  
DISMISSED.

FURTHER ORDERED that Herrmann Contingent Motion 4  
is DISMISSED.

5           FURTHER ORDERED that the attentions of the  
parties are directed to the REDECLARATION of this  
interference (Paper 73) mailed on the same date as this  
Decision.

10           FURTHER ORDERED that the attentions of the  
parties are directed to the JUDGMENT, (Paper 74) mailed on  
the same date as this Decision.

15           FURTHER ORDERED that a copy of this Decision  
shall be placed in the files of U.S. Patent 6,426,419 B1,  
U.S. Patent 6,624,265 B1, U.S. Application 10/630,552, and  
U.S. Application 11/021,967.

FURTHER ORDERED that if there is a settlement not  
of record in this interference, the attentions of the  
parties are directed to 35 U.S.C. § 135(c) and Bd.R. 205.

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<u>/ss/ Fred E. McKelvey</u>	)	
FRED E. McKELVEY	)	
Senior Administrative Patent Judge	)	
	)	
	)	
<u>/ss/ Adriene Lepiane Hanlon</u>	)	BOARD OF
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Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
<u>/ss/ Mark Nagumo</u>	)	
MARK NAGUMO	)	
Administrative Patent Judge	)	

Interference 105,364 and 105,365  
Grubbs v. Herrmann

Paper 72

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**Attachments:** 105364.072.pdf

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